

REMARKS

Claims 1-51 are pending. By this Amendment, claims 1, 24, 25, 27 and 28 are amended. Independent claims 1 and 24 are amended to even more clearly distinguish over the applied references. The dependent claims are amended to be consistent with amended claim 24. No new matter is added by the above amendments.

Applicants note with appreciation the allowance of claims 36-47, 50 and 51, and the identification of allowable subject matter in claims 3, 15-17 and 28-33. Applicants submit that all pending claims are in condition for allowance as detailed below.

Claim 1 stands rejected under 35 U.S.C. §112, first paragraph. The rejection is respectfully traversed.

Applicants respectfully submit that the Patent Office errs when it asserts that "support for the newly added claim limitation' at a time when the exposure light is emitted onto the substrate'" is not found in the specification or the drawings. Applicants' specification clearly and explicitly discloses that detection takes place during exposure of the substrate. As is well known to those skilled in the art, "exposure" involves the emission of "exposure light" "onto the substrate." For example, at page 49, lines 10-12, the specification states "the operation of the immersion exposure process of the substrate P can be performed in parallel with the detection operation of the detection apparatus 60." In addition, at page 50, lines 1-2, Applicants' specification states "the immersion exposure process may be performed on the substrate P in a state where the beams La are emitted to the outer side of the immersion area AR2 of the liquid LQ formed on the substrate P." Furthermore, at page 50, lines 14-16, Applicants' specification states that "based on the detection results of the detection apparatus 60, the control apparatus CONT may stop the operation of exposing the substrate P." The "immersion exposure process" described in Applicants' specification, of course, includes "exposure," which involves the emission of exposure light onto the substrate. Thus, Applicants' specification explicitly

discloses that the detection of liquid recited in claim 1 is performed "at a time when the exposure light is emitted onto the substrate." Furthermore, as the "operation of exposing the substrate P" may be stopped based on the detection, clearly exposure of the substrate was taking place during the detection. Withdrawal of the 35 U.S.C. §112, first paragraph rejection is requested.

Claims 1, 2, 4-14, 19 and 22 stand rejected under 35 U.S.C. §102(e) over Mulkens et al. (US2005/0132914). The rejection is respectfully traversed.

Mulkens et al. does not disclose the claim 1 detection apparatus "that detects whether a liquid is present on an object that is disposed lower than a front end of the projection optical system at a time when the exposure light is emitted onto the substrate by the projection optical system." In rejecting independent claim 1, the Office Action asserts that the claim 1 "exposure light" corresponds to the "electromagnetic waves" referenced in paragraph [0105] of Mulkens et al. However, the "electromagnetic waves" referenced in paragraph [0105] of Mulkens et al. are the detection waves emitted by the detector 22. The Mulkens et al. "electromagnetic waves" are not the exposure light emitted onto the substrate by the projection optical system. Furthermore, the Mulkens et al. "electromagnetic waves" are not emitted by the projection optical system. Mulkens et al. does not disclose a detection apparatus that detects whether liquid is present on an object ... at a time when the exposure light is emitted onto the substrate by the projection optical system. Accordingly, independent claim 1 and its dependent claims are patentable over Mulkens et al. Withdrawal of the rejection is requested.

Claims 18, 24-27, 34, 35, 48 and 49 stand rejected under 35 U.S.C. §103(a) over Mulkens et al. The rejection is respectfully traversed.

Dependent claims 18 and 48 are patentable for at least the reasons set forth above with respect to independent claim 1 from which they depend.

Mulkens et al. does not disclose or render obvious the combination of features recited in independent claim 24. For example, Mulkens et al. does not disclose or render obvious the claim 24 detection apparatus having a light receiving portion "provided in a space lower than the supply port of the liquid supply system" or that "detects a position of an edge portion of an immersion area." Mulkens et al. does not disclose any portion of its detection apparatus as being "provided in a space lower than the supply port of the liquid supply system." Furthermore, Mulkens et al. does not disclose any light receiving portion that detects a position of an edge portion of an immersion area. Accordingly, independent claim 24 and its dependent claims are patentable over Mulkens et al. Withdrawal of the rejection is requested.

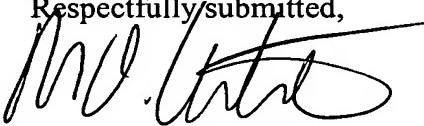
Claims 1, 20-23 and 48 stand rejected under 35 U.S.C. §103(a) over Takahashi (U.S. Patent No. 5,610,683). The rejection is respectfully traversed.

Takahashi does not disclose or render obvious the claim 1 exposure apparatus including "a detection apparatus that detects whether a liquid is present on an object ... at a time when the exposure light is emitted onto the substrate by the projection optical system." The Office Action acknowledges that Takahashi does not disclose that its liquid level gauge 801 is used to detect the level of liquid at a time when the exposure light is emitted onto the substrate. The Office Action, however, without any factual support, alleges that "it would have been obvious to one of ordinary skill in the art to have the liquid level gauge of Takahashi perform detection during exposure, for the purpose of ensuring satisfactory liquid levels during exposure in order to achieve desired patterns." The Office Action cites to no reference or any other facts to support its conclusion. Takahashi does not recognize that there could be an excess or deficiency of liquid during exposure which would benefit from being detected. Clearly, the Office Action is relying on Applicants' claims to propose this modification of Takahashi, which is impermissible hindsight. Takahashi only discloses using the gauge 801 when the cassettes are filled initially with liquid. Thus, Takahashi provides no recognition of any problem addressed by Applicants'

claim 1 and does not suggest that it even would be possible to address such a problem by using the liquid level detector 801 of Takahashi to detect whether liquid is present on an object at a time when the exposure light is emitted onto the substrate by the projection optical system. Accordingly, independent claim 1 and all of its dependent claims are patentable over Takahashi. Withdrawal of the rejection is requested.

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,


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MAC/jls

Attachments:

Request for Continued Examination
Petition for Extension of Time

Date: July 31, 2009

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